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09/876,149	06/08/2001	Mathias Rautenberg	1454.1054	6703

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EXAMINER
TON, ANTHONY T

ART UNIT	PAPER NUMBER
2661	

DATE MAILED: 10/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/876,149	Applicant(s) RAUTENBERG, MATHIAS	
	Examiner Anthony T Ton	Art Unit 2661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>08 June 2001</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-16</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>08 June 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

PHIRIN SAM
PRIMARY EXAMINER

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>8/17/01</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   **35 U.S.C. 101 reads as follows**:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2.   **Claims 1-9 and 15** are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matters for use in a network. These claims are no more than particular data structures, which may be characterized as "functional descriptive material" and thus are non-statutory. See the MPEP references below.

3.   **MPEP, IV., A., 1 states, in part**:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. Warmerdam, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium, it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare In re Lowry,

32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored

on a computer readable medium that increases computer efficiency held statutory) and

Warmerdam, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data

structure stored in memory held statutory product-by-process claim) with Warmerdam, 33 F.3d

at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory).

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

5.   **Claims 10-14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for

omitting essential elements, such omission amounting to a gap between the elements. See MPEP

§ 2172.01. The omitted elements are:

The claimed subject matter of "**optimized in terms of timing**" in the claimed limitation

of processing the routing/forwarding information using standardized algorithms **optimized in**

terms of timing is not adequately disclosed by the specification.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7.   **Claims 10-14 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **the Admitted Prior Art** in view of **Sedgewick, Robert** (Germany, "Algorithmen", 1994, Addisson Wesley, Bonn; Muchen XP002158576, ISBN: 3-89319-402-9) (IDS provided by the Applicants) hereinafter referred to as **the Admitted Prior Art** and **Sedgewick,** respectively.

a) **In Regarding to Claim 10:** The given first and second data structures A and B in Fig.2 and disclosures in Paras. [009] – [0014] of **the Admitted Prior Art** disclosed a computer assisted method, for processing routing/forwarding information in a network by accessing at least one first data structure having at least one entity per object in addition to routing/forwarding information and a second data structure having at least one entity per object in addition to the routing/forwarding information *(see Para. [009}: conventional first and second data structures A and B)*, comprising:

processing the routing/forwarding information using standardized algorithms optimized in terms of timing *(see the Admitted Prior Art: Paras. [0011] – [0015])*.

The Admitted Prior Art failed to explicitly disclose accessing each object to be processed in the first and second data structures **using the additional entities**.

Sedgewick explicitly disclosed such accessing each object to be processed in the first and second data structures **using the additional entities** *(see Page 42 lines 10-19)*.

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such accessing each object to be processed in the first and second data structures **using the additional entities,** as taught by Sedgewick with the Admitted Prior Art, so that a packet can

be routing to a destination on appropriate paths. **The motivation** for doing so would have been

to provide a multiple linked list to support multiple links for each node in a communication

network. Therefore, it would have been obvious to combine Sedgewick with the Admitted Prior

Art in the invention as specified in the claim.

b) **In Regarding to Claim 11: The Admitted Prior Art further disclosed** the

routing/forwarding information is split at least over the first data structure and the second data

structure, the second data structure has at least one entity per object, which entity makes

reference to a corresponding object in the first data structure *(see Fig.2, except for the last two*

columns of data structure A' and the last column of data structure B' (i.e. the given first and

second data structures A and B)).

c) **In Regarding to Claim 12: The Admitted Prior Art further disclosed** the

standardized algorithms are customary list administration algorithms *(see page 7, Para. [0019]:*

On the basis of this extension, customary list administration algorithms known in the prior art).

d) **In Regarding to Claim 13: The Admitted Prior Art disclosed** all aspects of this

claim as set forth in claim 10.

The Admitted Prior Art failed to explicitly disclose wherein the standardized

algorithms are DELETE and INSERT algorithms.

Sedgewick explicitly disclosed such standardized algorithms are DELETE and INSERT

algorithms *(see Page 42 lines 1-4)*.

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to

combine such standardized algorithms are DELETE and INSERT algorithms, as taught by

Sedgewick with the Admitted Prior Art, so that the routing table of a routing node in a

communication network can be updated properly. **The motivation** for doing so would have been

to provide a fast processing and save memory in an intermediate node which is routing a packet

to a destination node in a communication network. Therefore, it would have been obvious to

combine Sedgewick with the Admitted Prior Art in the invention as specified in the claim.

e) **In Regarding to Claim 14: The Admitted Prior Art further disclosed** the

processing of the routing/forwarding information comprises administering changes to the

routing/forwarding information *(see page 7, Para. [0019]: On the basis of this extension,*

customary list administration algorithms known in the prior art can now be used for

administering changed path information 24).

f) **In Regarding to Claim 16: The Admitted Prior Art disclosed** a computer assisted

method for a multilayer protocol label switching network *as set forth in the given first and*

second data structures A and B in Fig.2 and disclosures in Paras. [009] – [0014].

The Admitted Prior Art failed to explicitly disclose adding a first routing pointer to

label information base information for each object contained in a first data structure, such that

each first routing pointer points to a respective next object in the first data structure; and adding a

second routing pointer to forwarding information base information for each object contained in a

second data structure, such that each second routing pointer points to a corresponding object in

the first data structure.

Sedgewick explicitly disclosed such adding a first routing pointer to label information

base information for each object contained in a first data structure, such that each first routing

pointer points to a respective next object in the first data structure; and adding a second routing

pointer to forwarding information base information for each object contained in a second data

structure, such that each second routing pointer points to a corresponding object in the first data

structure *(see Page 42 lines 10-19)*.

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to

combine such adding a first routing pointer to label information base information for each object

contained in a first data structure, such that each first routing pointer points to a respective next

object in the first data structure; and adding a second routing pointer to forwarding information

base information for each object contained in a second data structure, such that each second

routing pointer points to a corresponding object in the first data structure, as taught by

Sedgewick with the Admitted Prior Art, so that a packet can be routing to a destination on

appropriate paths in a case of congestion in a previous path. **The motivation** for doing so would

have been to provide a linked list to support multiple links for each node in a communication

network. Therefore, it would have been obvious to combine Sedgewick with the Admitted Prior

Art in the invention as specified in the claim.

8.   **Claims 10 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Cucchiara et al. ("Definitions of Managed Objects for the Multiprotocol Label Switching,

Label Distribution Protocol (LDP)") October 22, 1999, IFTF Networking Group XP-

002158575, pages 1-56 in view of **Sedgewick, Robert** (Germany, "Algorithmen", 1994,

Addisson Wesley, Bonn; Muchen XP002158576, ISBN: 3-89319-402-9) hereinafter referred to

as **Cucchiara** and **Sedgewick,** respectively (both are in the IDS provided by the Applicants).

a) **In Regarding to Claim 10: Cucchiara disclosed** all claimed subject matters of a

computer assisted method, for processing routing/forwarding information in a network by

accessing at least one first data structure having at least one entity per object in addition to

routing/forwarding information and a second data structure having at least one entity per object

in addition to the routing/forwarding information, comprising: processing the routing/forwarding

information using standardized algorithms optimized in terms of timing *as set forth in page 5*

lines 7-18, page 9 lines 9-18, page 10 lines 15-19, and page 41 line 16 – page 45 line 3.

Cucchiara failed to explicitly disclose accessing each object to be processed in the first

and second data structures **using the additional entities**.

Sedgewick explicitly disclosed such accessing each object to be processed in the first

and second data structures **using the additional entities** *(see Page 42 lines 10-19)*.

At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to

combine such accessing each object to be processed in the first and second data structures **using**

the additional entities, as taught by Sedgewick with Cucchiara, so that a packet can be routing

to a destination on appropriate paths. **The motivation** for doing so would have been to provide a

multiple linked list to support multiple links for each node in a communication network.

Therefore, it would have been obvious to combine Sedgewick with Cucchiara in the invention as

specified in the claim.

b) **In Regarding to Claim 16**: **Cucchiara disclosed** a computer assisted method for a

multilayer protocol label switching network *as set forth in page 5 lines 7-18, page 9 lines 9-18,*

page 10 lines 15-19, and page 41 line 16 – page 45 line 3.

Cucchiara failed to explicitly disclose adding a first routing pointer to label information

base information for each object contained in a first data structure, such that each first routing

pointer points to a respective next object in the first data structure; and adding a second routing

pointer to forwarding information base information for each object contained in a second data structure, such that each second routing pointer points to a corresponding object in the first data structure.

Sedgewick explicitly disclosed such adding a first routing pointer to label information base information for each object contained in a first data structure, such that each first routing pointer points to a respective next object in the first data structure; and adding a second routing pointer to forwarding information base information for each object contained in a second data structure, such that each second routing pointer points to a corresponding object in the first data structure *(see Page 42 lines 10-19)*.
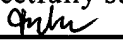
At the time of the invention, **it would be obvious** to a person of ordinary skill in the art to combine such adding a first routing pointer to label information base information for each object contained in a first data structure, such that each first routing pointer points to a respective next object in the first data structure; and adding a second routing pointer to forwarding information base information for each object contained in a second data structure, such that each second routing pointer points to a corresponding object in the first data structure, as taught by Sedgewick with Cucchiara, so that a packet can be routing to a destination on appropriate paths in a case of congestion in a previous path. **The motivation** for doing so would have been to provide a linked list to support multiple links for each node in a communication network. Therefore, it would have been obvious to combine Sedgewick with Cucchiara in the invention as specified in the claim.

Examiner Information

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to **Anthony T Ton** whose telephone number is **571-272-3076**. The

examiner can normally be reached on M-F: 8:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, **Ken Vanderpuye** can be reached on **571-272-3078**. The fax phone number for the

organization where this application or proceeding is assigned is **571-273-3076**.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted,
by : _____
Anthony T. Ton
Patent Examiner
October 15, 2004

PHIRIN SAM
PRIMARY EXAMINER